



The U.S. Environmental Protection Agency's **ENERGY STAR® Program** promotes the use of high-efficiency technologies and equipment. ENERGY STAR labeled homes use at least 30% less energy than homes built to meet the national Model Energy Code while maintaining or improving indoor air quality. These fact sheets are designed to help consumers learn more about the energy-efficient improvements to their ENERGY STAR labeled homes.

# ENERGY STAR® LABELED AIR CONDITIONERS

## MECHANICAL EQUIPMENT IMPROVEMENTS

On average, air conditioning accounts for 15 percent of home energy use, but can increase to over 40 percent in hot and humid regions. Thus an effective air conditioning system is an important part of an energy-efficient home.

Central air conditioners typically use a forced air distribution system. A fan blows air through a filter then over a coil to condition it (removing heat and humidity). The conditioned air is then circulated through ducts to the various rooms within a residence. A thermostat controls the system to maintain the spaces at an occupant set temperature.

Federal appliance standards require that new air conditioners be rated with a Seasonal Energy Efficiency Ratio (SEER). This rating is a ratio of the seasonal energy output to the seasonal energy input. These standards prohibit the distribution of air conditioners with a SEER rating of less than 10.

The U.S. Environmental Protection Agency is seeking to reduce energy consumption and the resultant pollution by increasing the efficiency of new space conditioning systems. Through its ENERGY STAR Labeling Program, air conditioners which have a minimum SEER of 12 can display the ENERGY STAR label.

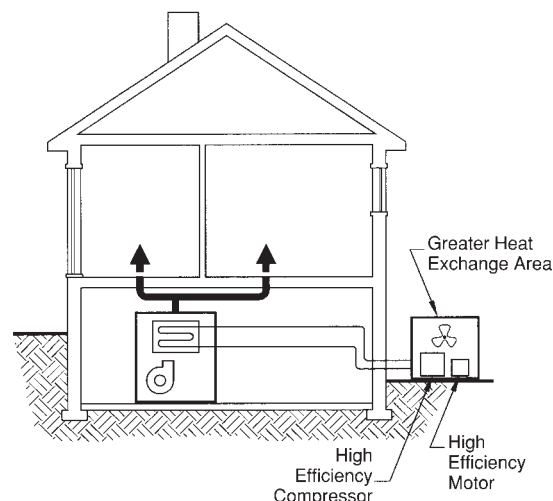
As shown in Figure 1, these high-efficiency air conditioners can include upgrades such as: high-efficiency compressors, variable speed fans, high-efficiency motors, and improved heat exchangers.

Many of the advantages of a high-efficiency air conditioner can be lost if the system is not sized properly. An oversized system will cycle more frequently which reduces efficiency and the ability to

remove moisture. The distribution system also needs to be properly sized and sealed. Ducts and registers that do not match the air flow requirements may result in poor delivery of conditioned air. Leaky ducts allow conditioned air to escape into attics, crawl spaces, and unfinished basements. In addition to moisture related damage, these problems can cause discomfort and higher utility bills when occupants compensate by lowering thermostat settings. When properly sized and installed, an ENERGY STAR labeled air conditioner will use 20 to 40 percent less energy than a standard system.

In addition to ENERGY STAR labeled air conditioners, ENERGY STAR labeled home owners often benefit from the installation of other energy saving features such as increased insulation, air sealing, high-performance windows, and a high-efficiency duct system. These features can allow a smaller, less costly air conditioning system to be installed.

FIGURE 1: ENERGY STAR LABELED AIR CONDITIONER



# ENERGY STAR AIR LABELED CONDITIONERS

## MECHANICAL EQUIPMENT IMPROVEMENTS

### RESOURCES

***The Consumer Guide to Home Energy Savings*** (Wilson and Morrill), 5th edition, 1996, available from the American Council for an Energy Efficient Economy at 510-549-9914.

***Homemade Money*** (Heede and the staff of RMI), 1995, available from the Rocky Mountain Institute at 970-927-3851.

The following fact sheets are available by calling the U.S. Environmental Protection Agency's toll-free ENERGY STAR Hotline at 1-888-STAR-YES (1-888-782-7937):

***Increased Insulation, Air Sealing, High-Performance Windows, Right-Sized Air Conditioners, and Right-Sized/Compact Ducts.***

***Efficient Air-Conditioning*** fact sheet available from the Energy Efficiency and Renewable Energy Clearinghouse (EREC), P.O. Box 3048, Merrifield, VA 22116, 1-800-DOE-EREC (1-800-363-3732)

For a current list of ENERGY STAR Central Air Conditioners, visit the Environmental Protection Agency's web site at <http://www.epa.gov/appdstar/hvac/prodcac.html>

### BENEFITS

Installing ENERGY STAR labeled air conditioners provides many benefits including:

**Improved comfort.** ENERGY STAR labeled air conditioners often include advanced features that can provide more even cooling and quieter operation for improved comfort.

**Increased quality.** ENERGY STAR labeled air conditioners exceed the minimum efficiency levels established by federal appliance standards. These high-performance levels are often achieved with better components that can result with longer equipment life and extended manufacturer's warranties.

**Lower utility bills.** The average home owner spends over \$220 per year on air conditioning. ENERGY STAR labeled air conditioners can reduce this cost by \$20 to \$60 and over the life of the system can cost less to own and operate than a standard system.

**Improved resale position.** ENERGY STAR labeled air conditioners can provide the many impressive benefits discussed above resulting in a more comfortable, higher quality home with lower utility bills. This can translate into higher resale value.